Nilfisk Advance

setting standards

TR5500 USE AND CARE/SERVICE

High-pressure surface cleaning and water recovery/recycling system

For use with the CY200 walk behind surface cleaner/recovery system

Doc: TR5500M Issued: 11/2010 Version: 1

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GENERAL INFORMATION

GENERAL SAFETY INSTRUCTIONS

Specific Cautions and Warnings are included to warn you of potential danger of machine damage or bodily harm.

READ ALL INSTRUCTIONS BEFORE SERVICING

CAUTION AND WARNING SYMBOLS

- Nilfisk-Advance uses the symbols below to signal potentially dangerous conditions. Always read this information carefully and take the necessary steps to protect personnel and property.

DANGER!

THIS SYMBOL IS USED TO WARN OF IMMEDIATE HAZARDS THAT WILL CAUSE SEVERE PERSONAL INJURY OR DEATH.

- This machine emits exhaust gases (carbon monoxide) that can cause serious injury or death; always provide adequate ventilation when using machine.

WARNING!

THIS SYMBOL IS USED TO CALL ATTENTION TO A SITUATION THAT COULD CAUSE SEVERE PERSONAL INJURY.

- This machine shall be used only by properly trained and authorized persons.
- When towing a TR5500 on ramps or inclines, avoid sudden stops when loaded. Avoid abrupt sharp turns. Use low speeds down hills.
- High speed operation is designed only for use on level surfaces.
- Turn the key switch off (O) and disconnect the batteries before servicing electrical components.
- Never work under a machine without safety blocks or stands to support the machine.

- Do not dispense flammable cleaning agents, operate the machine on or near these agents, or operate in areas where flammable liquids exist.
- Ear plugs or other hearing protection devices are mandatory. The engines, pumps, and Cyclone Cleaning Head all produce decibel levels high enough to cause hearing damage or loss.

CAUTION!

THIS SYMBOL IS USED TO CALL ATTENTION TO A SITUTION THAT COULD CAUSE MINOR PERSONAL INJURY OR DAMAGE TO THE MACHINE OR OTHER PROPERTY.

- This machine is only approved for hard surface use.
- When operating this machine, ensure that third parties are not endangered.
- Before performing any service function, carefully read all instructions pertaining to that function.
- Do not leave the machine unattended without first turning the key switch off (O), removing the key and chocking the wheels.
- Turn the key switch off (O) and remove the key before opening the electrical control box.
- Take precautions to prevent hair, jewelry, or loose clothing from becoming caught in moving parts.
- Before use, all hoses and drain plugs must be secure.

NOTES:

- Pay attention to all decals and labels on this machine.
- If you have any questions, contact your supervisor or your local Advance Industrial Dealer.
- Should your machine malfunction, do not attempt to correct the problem.
  Only a trained company mechanic or an authorized Advance Dealer Service person shall make repairs to this equipment.
- Reference the separately provided engine manufacturer's maintenance and operator manuals for more detailed engine specification and service data.

SAFETY RECOMENDATIONS

STANDARD PRACTICES AND PROCEDURES

This information was prepared to aid in the identification of potentially unsafe conditions when using high-pressure washing equipment. These practices describe how to use high-pressure water jets for cleaning hard surfaces. These practices do NOT replace the training necessary to operate and maintain high-pressure water jet systems. It should be noted that other potential hazards might exist which have not been mentioned in this manual.

BEFORE OPERATING EQUIPMENT

Before operation of this equipment, it is important that you read the Owner's Manual for each of the component parts installed in your machine. It is especially important to read and understand all of the safety information included in the manuals. Failure to do so could result in damage to the equipment, serious injury or death to the operator and may void any and all warranties associated with this equipment.

WARNING!

This equipment has:
MOVING PARTS at HIGH RATES OF SPEED
VERY HOT WATER (with heat option)
HIGH PRESSURE WATER
GASOLINE
DIESEL FUEL (with heat option)

In all cases, Advance products are sold with the understanding that the purchaser agrees to **THOROUGHLY TRAIN ALL OPERATING AND MAINTENANCE PERSONNEL IN THE CORRECT AND SAFE OPERATION AND MAINTENANCE OF THE CYCLONE SYSTEM.**

WARNING!

Do **NOT** attempt to change Original Equipment Manufacturer (OEM) parts or equipment. Use of non-OEM parts could result in damage to the equipment, serious injury or death to the operator and may void any and all warranties associated with this equipment.

SAFETY RECOMENDATIONS

EQUIPMENT & CLOTHING

1. Ear plugs or other hearing protection devices are mandatory. The engines, pumps, and Cyclone Cleaning Head all produce decibel levels high enough to cause hearing damage or loss.
2. Leather gloves should be worn at all times. With the optional water heater components the Cyclone system uses 160°F water. High-pressure and return hoses and couplings get hot enough to burn you.
3. Safety glasses are recommended when operating the Cyclone System.
4. Long pants are recommended when operating the Cyclone System.

STANDARD PRACTICES AND PROCEDURES

1. Never leave the TR5500/CY200 engine running unattended.
2. A strong vacuum is formed from the rotation of the Cyclone cleaning head. Therefore, all surface plates such as manhole covers, utility access covers and large debris must be secured, removed or avoided during the cleaning process.
3. All surfaces should be swept prior to operating the CY200, hard surface cleaner, The CY200 is not designed to pick up particulate matter such as sand.

WARNING!

These items could cause extensive and costly damage to the blades and spray bars and serious injury or death to the operator.

1. Always turn off the engine before fueling.
2. Never point the hand-held spray gun at yourself or another person. Water coming out of the gun is at a high enough pressure to cause injury or death.
3. This equipment should not be used without consulting all applicable standards, guidelines, or recommendations of the United States Occupational Safety and Health Administration (OSHA), the American Society of Testing Materials (ATSM), the National Standards Institute (ANSI), and the instructions, recommendations and standards of Advance. Advance does not guarantee that the practices described and the recommendations contained in this manual will prevent harm or injury, even when such equipment is properly used in conformity with the recommended practices. In the event of bodily injury, nothing in this manual should substitute for proper medical care.

SAFETY RECOMENDATIONS

WARNING!

While towing the TR5500 when filled with water, never exceed the maximum towing speed of 55 mph.

BATTERY SAFE HANDLING GUIDELINES

1. Always wear proper eye, face and hand protection when working with battery.
2. Never lean over the battery while boosting, testing, or charging.
3. Exercise caution when working with metallic tools or conductors to prevent short circuits and arcing.
4. Keep terminals protected to prevent accidental shorting.
5. Replace any battery that has signs of damage to the terminals, case, or cover.
6. Install the battery in a ventilated area for operation and during charging.
7. The Yellow Top Optima battery is a maintenance free battery.

BATTERY MAINTENANCE

The OPTIMA battery is truly maintenance free. When charged properly you will not have to worry about leaking, corrosion, or gassing. Periodically inspect your battery terminal connections to ensure they are clean, snug, and protected from the elements.

OPEN CIRCUIT VOLTAGE (OCV) AND STORAGE

OCV: 34 >12.8 volts
(For a fully charged battery)
D34 >13.0 volts
(For a fully charged battery)

BATTERY STORAGE

Because of the high purity lead grid in the OPTIMA battery, it has a self-discharge rate much lower than conventional flat-plate batteries. This means the OPTIMA can sit for longer periods retaining enough charge to start your engine. Depending on storage temperature, the OPTIMA can usually sit for 8 to 12 months and start most engines.
When possible, store your battery in a cool, dry location. Check the battery voltage every 6 months and charge if it falls below 12.6 volts. Disconnect the battery cables when the vehicle is not being used for extended periods.

INTRODUCTION

SERVICE MANUAL PURPOSE

This manual is a technical resource that Nilfisk-Advance Technologies provides for servicing a TR5500 as well as a CY200. It contains information deemed necessary to provide basic troubleshooting, maintenance and repairs within a reasonable timeframe (example - 2-3 hours). If your repair involves multiple visits to repair the same problem, or the repair cannot be completed within 3-4 hours, a call to Nilfisk-Advance Technologies Technical Support is needed to alert the factory to potential issues and/or provide the customer with an acceptable level of service. Nilfisk-Advance Technologies technical support **800.335.9695**. Refer to the website www.advanceus.com for additional information not contained in this manual, as well as updates or expanded instructions to procedures noted here.

Note: Bold numbers in parentheses in text indicate an illustrated item.

GENERAL MACHINE DESCRIPTION

The TR5500 is an industrial hard surface cleaning machine that is trailer mounted and intended to work with a CY200 or to be used as a stand-alone power washer. All models use a single high-pressure walk behind cyclone cleaning head with dual spray tips and instant recovery (CY200). All models are equipped with a high-pressure cleaning wand. The trailer system contains the power unit and high pressure pump as well as the multi stage water recycling system.

PARTS AND SERVICE

Repairs should be performed by an Authorized Nilfisk-Advance Service Center that employs factory-trained service personnel and maintains an inventory of Nilfisk-Advance original replacement parts and accessories.

NAMEPLATE

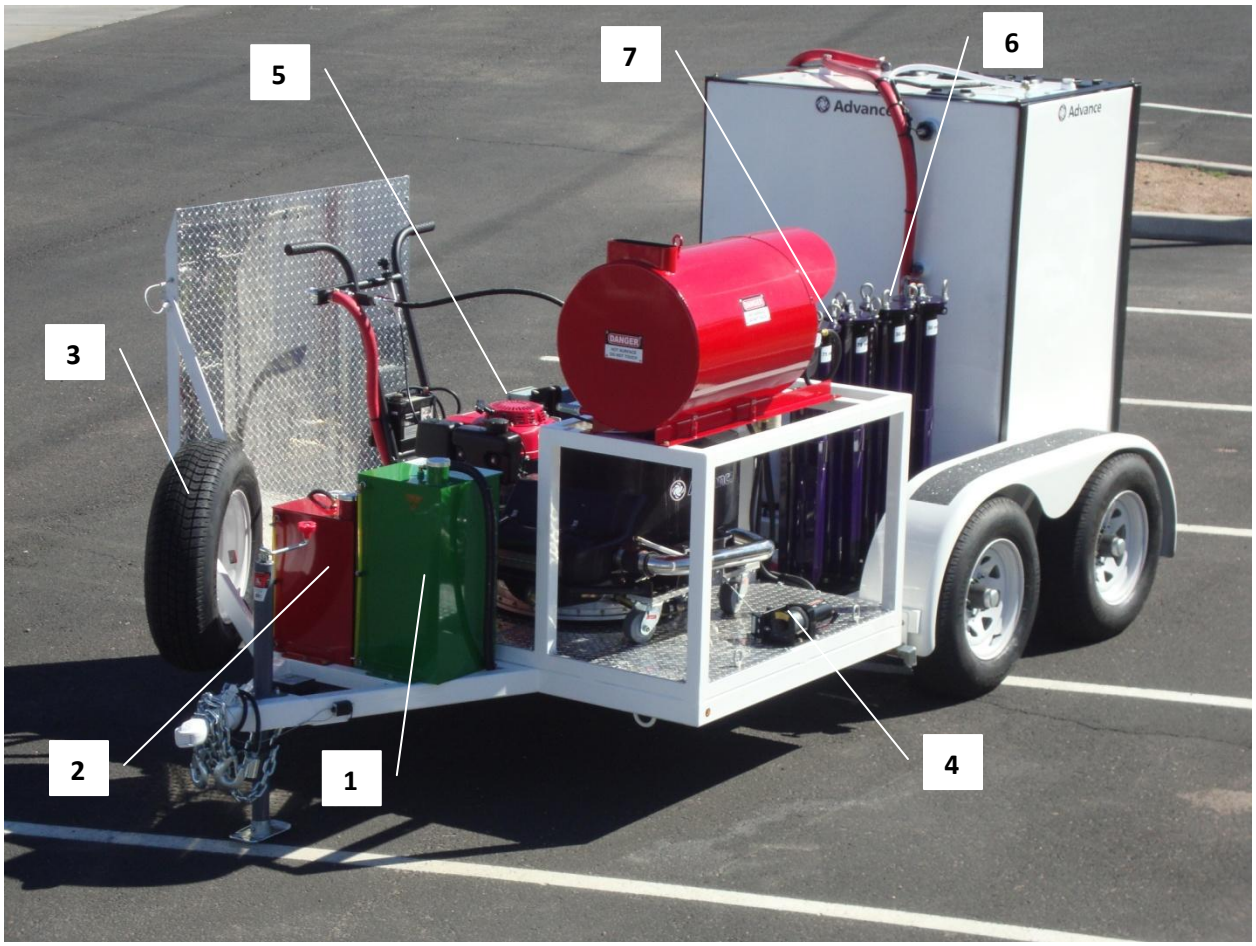
See Figure 1. The Model Number and Serial Number of the machine are shown on the nameplate **(A)** located at the front of the trailer.

MODEL NUMBER _____
SERIAL NUMBER _____
This information is required when ordering repair parts for the machine or contacting Nilfisk-Advance Technical Support.

KNOW YOUR MACHINE

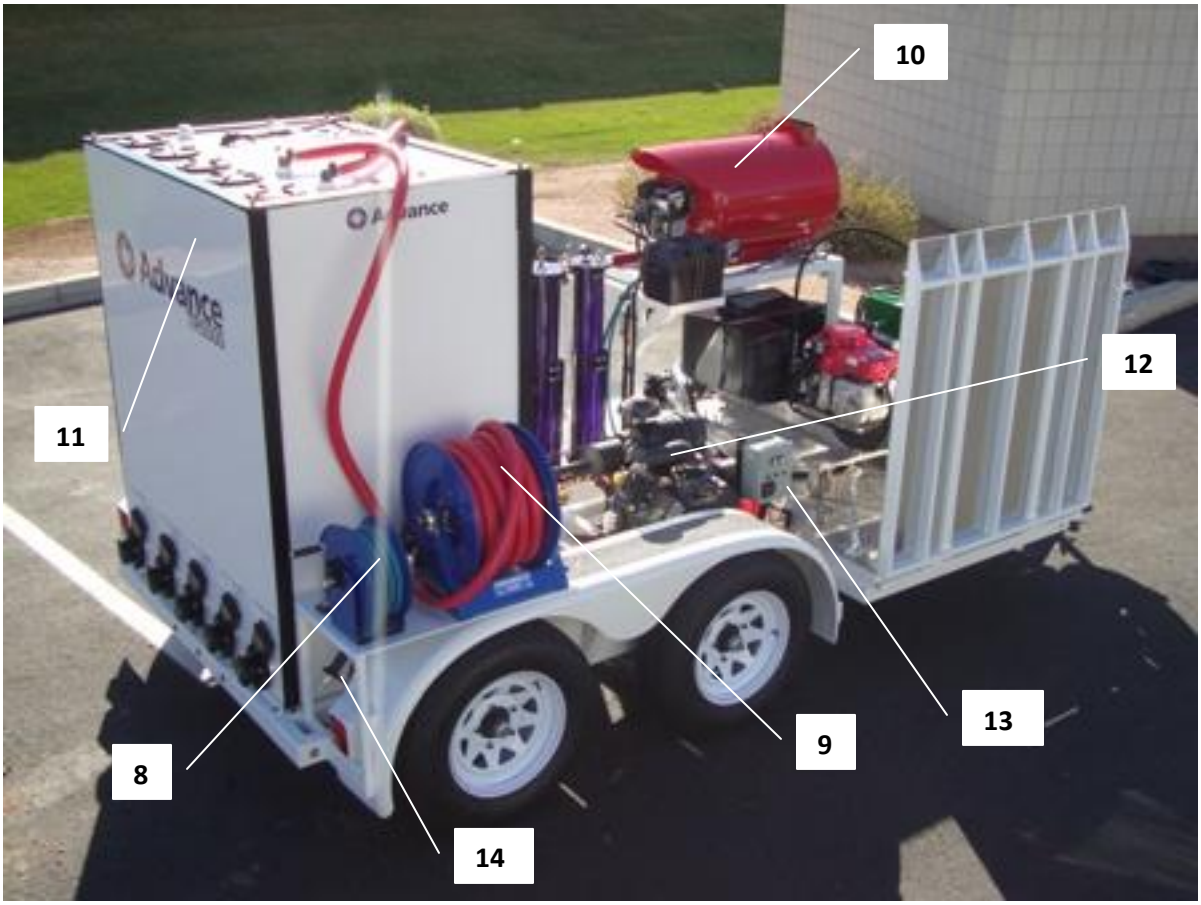
As you read through this manual, you will occasionally run across a bold number or letter in parenthesis, i.e. **(2)**. These numbers refer to an item shown on these pages unless otherwise noted. Refer back to these pages whenever necessary to pinpoint the location of an item mentioned in the text. **NOTE:** Refer to the service section of this manual for detailed explanations of each item illustrated on these pages.

1. Diesel fuel tank (14 gal)
2. Gasoline tank (10 gal)
3. Spare tire
4. Winch
5. CY200
6. 30 micron filter housings
7. 75 micron filter housings



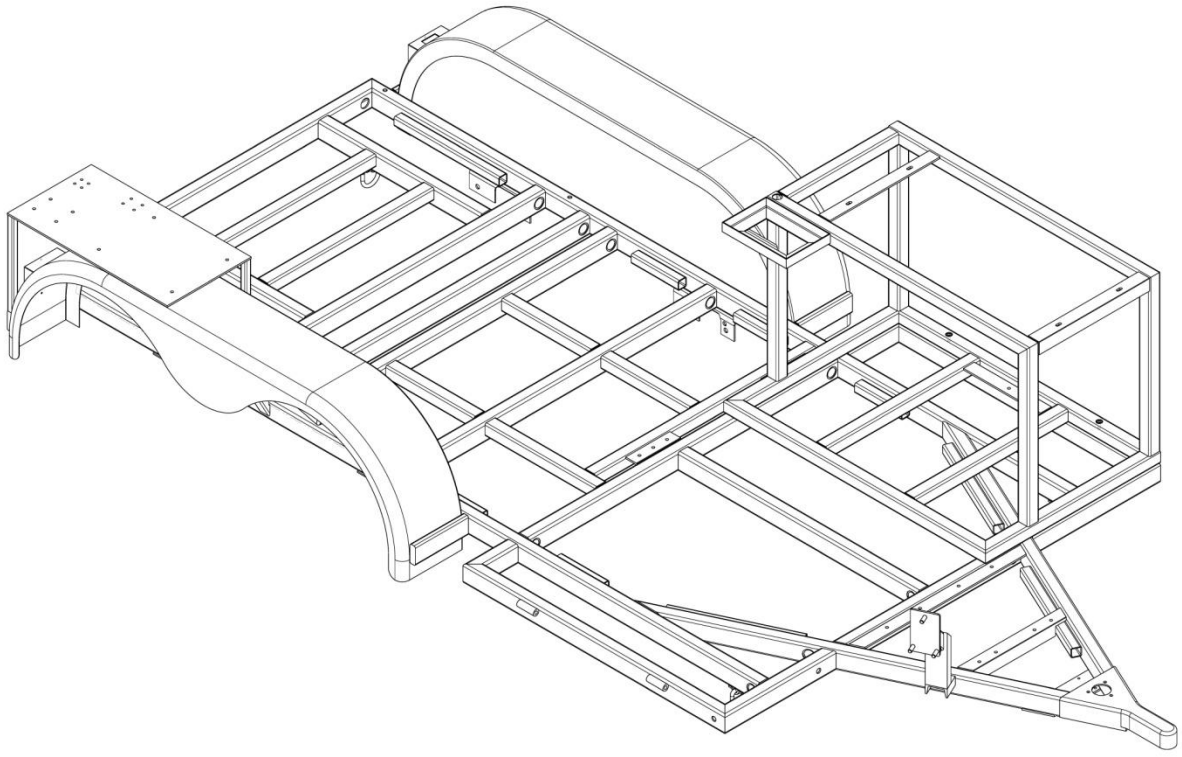
KNOW YOUR MACHINE

8. High pressure supply hose
9. Low pressure return hose
10. Water heater coil (optional)
11. Water and reclaim tank
12. Engine
13. Control box
14. Power washing wand



TR5500 TRAILER CHASSIS

The TR5500 Trailer is hand crafted with cold rolled steel tubing; this chassis is sand blasted and powder coated to ensure a professional appearance as well as a hard long lasting finish. The TR5500 is equipped with dual 5,000 lb torsion axle suspension, standard electric trailer brakes, a standard 7 pin trailer hook up and an integrated 2 5/16 inch trailer hitch. In addition the TR5500 comes standard with high visibility LED running and brake lights to ensure safety while transporting the TR550 trailer unit.

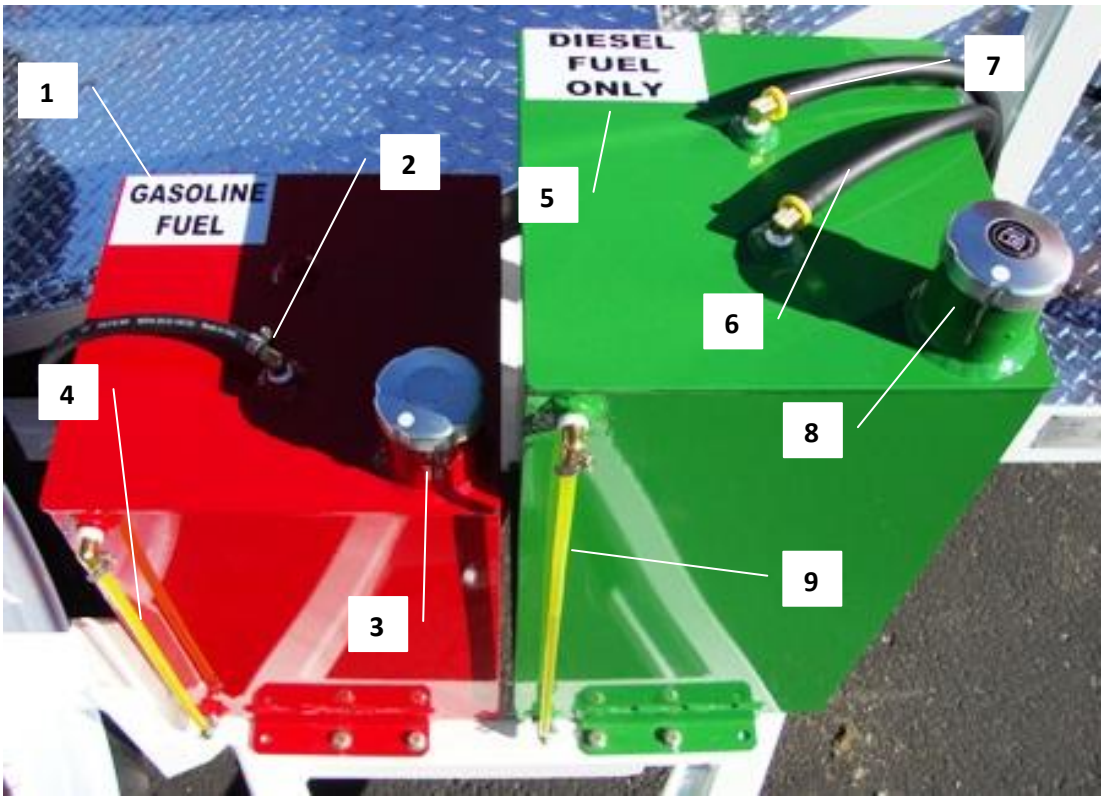


GASOLINE FUEL TANK

1. 10 gallon capacity
2. Suction line
3. Fill tube with cap
4. Sight hose

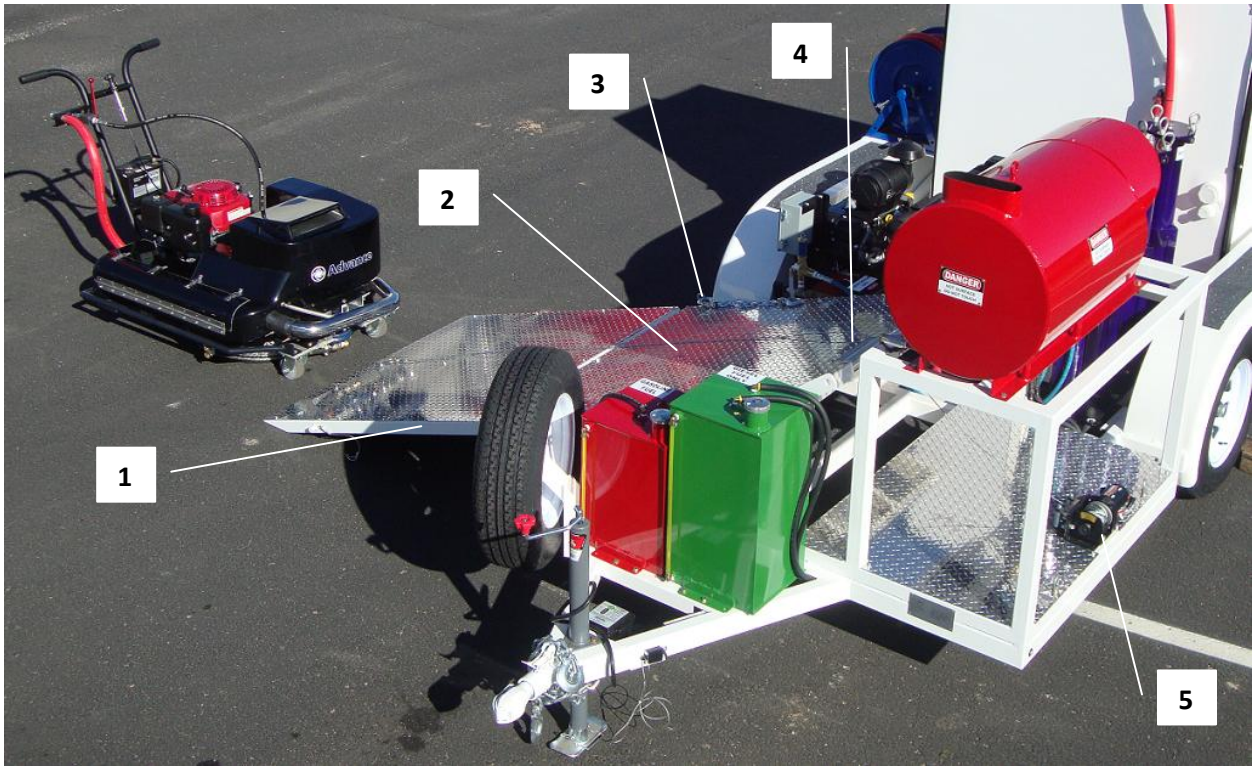
DIESEL FUEL TANK

5. 14 gallon capacity
6. Suction line
7. Return line
8. Fill tube with cap
9. Sight hose



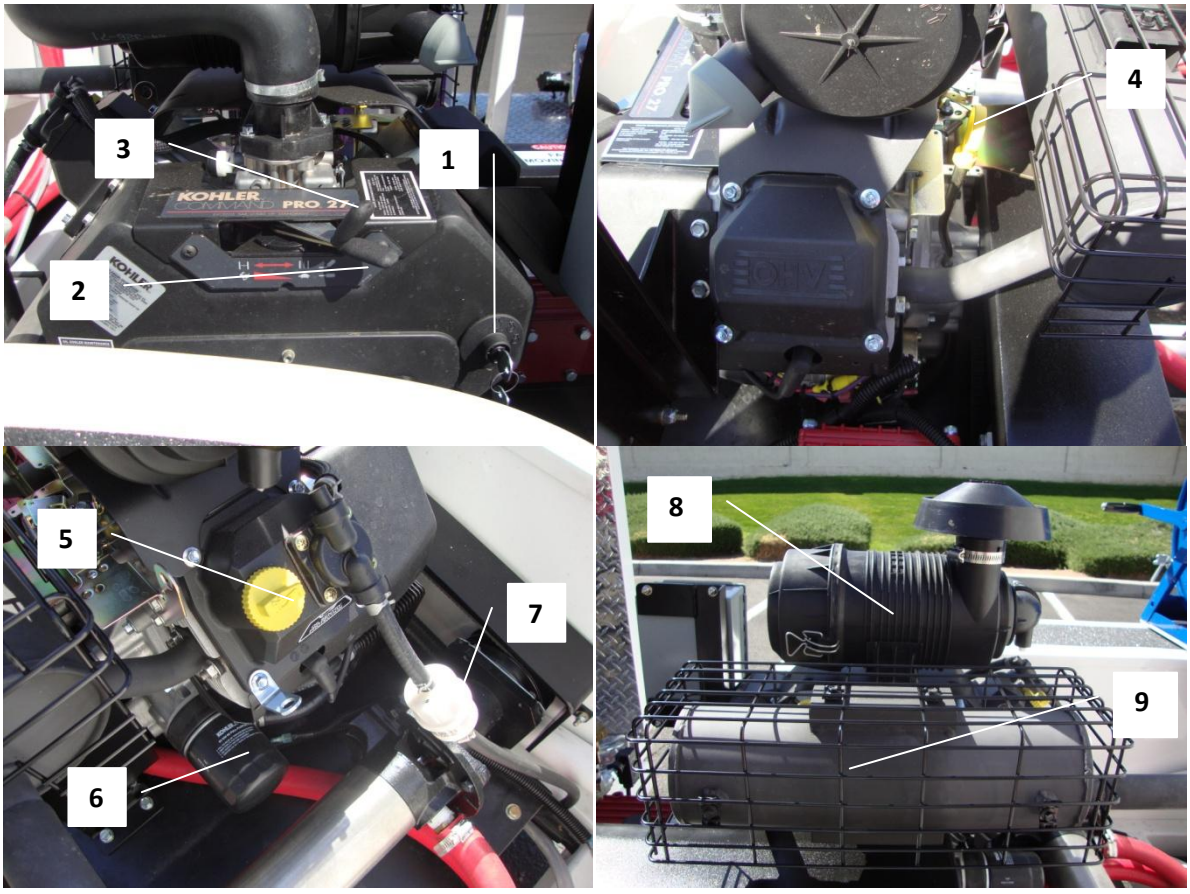
CY200 STORAGE DECK

1. Counter balanced loading ramp
2. Diamond plate aluminum decking
3. Tie down eye bolts with security chains
4. Winch cable roller
5. LT2000 Superwinch with 2000 lb capacity



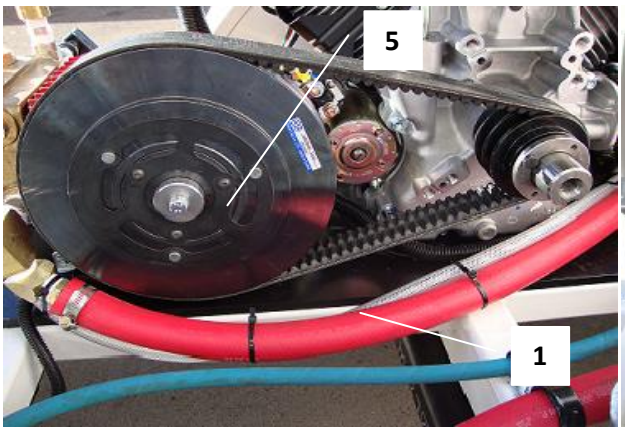
KOHLER 27 HP ELECTRIC START 2 CYL ENGINE

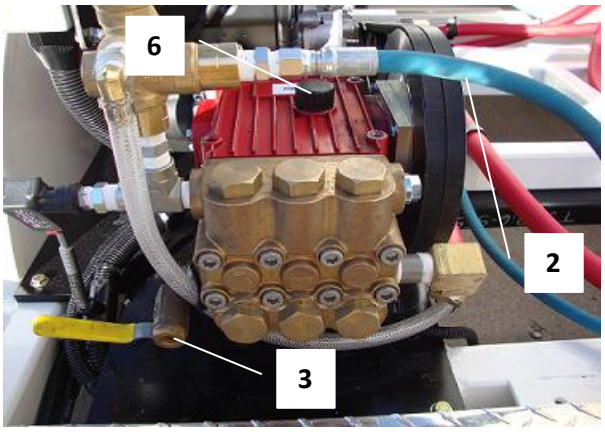
1. Electric start
2. Manual engine throttle
3. Manual engine choke
4. Engine oil dip stick
5. Engine oil fill cap
6. Oil filter
7. Inline fuel filter
8. Engine air filter assembly
9. Engine exhaust

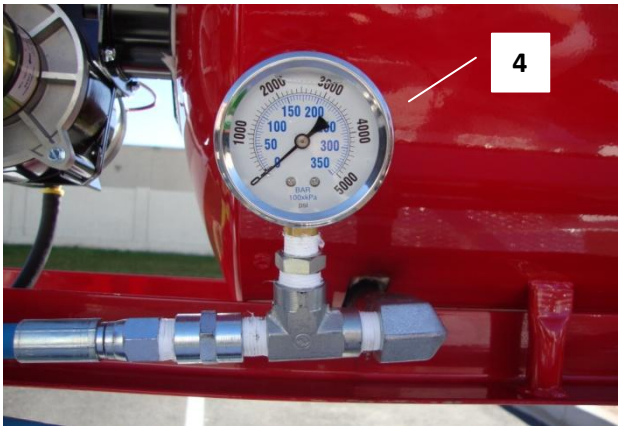


P435R GIANT PUMP

1. Low pressure supply line
2. High pressure output line
3. Bleeder valve
4. Analog pressure gauge
5. Belt driven electromagnetic clutch
6. Oil fill cap/Dip stick

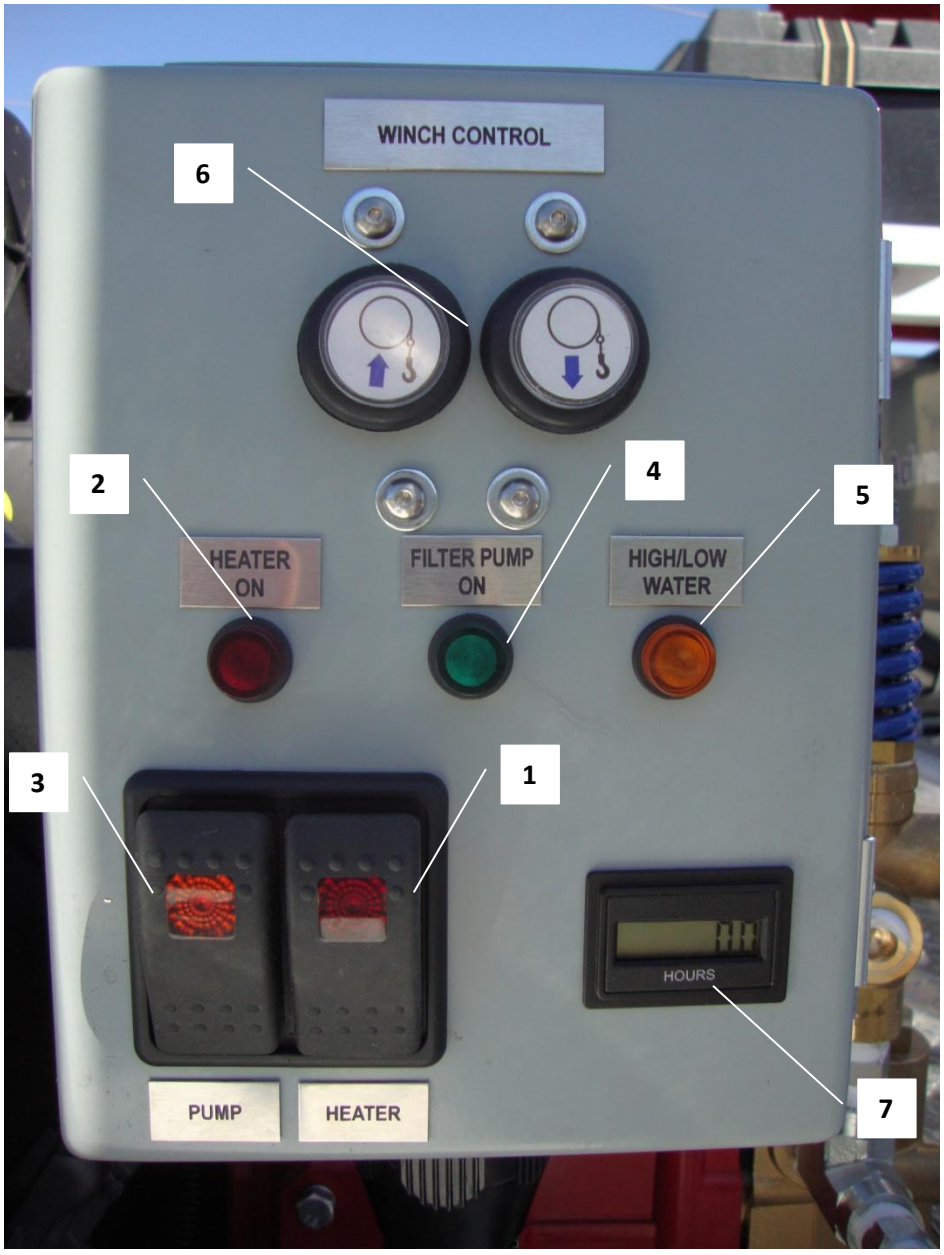






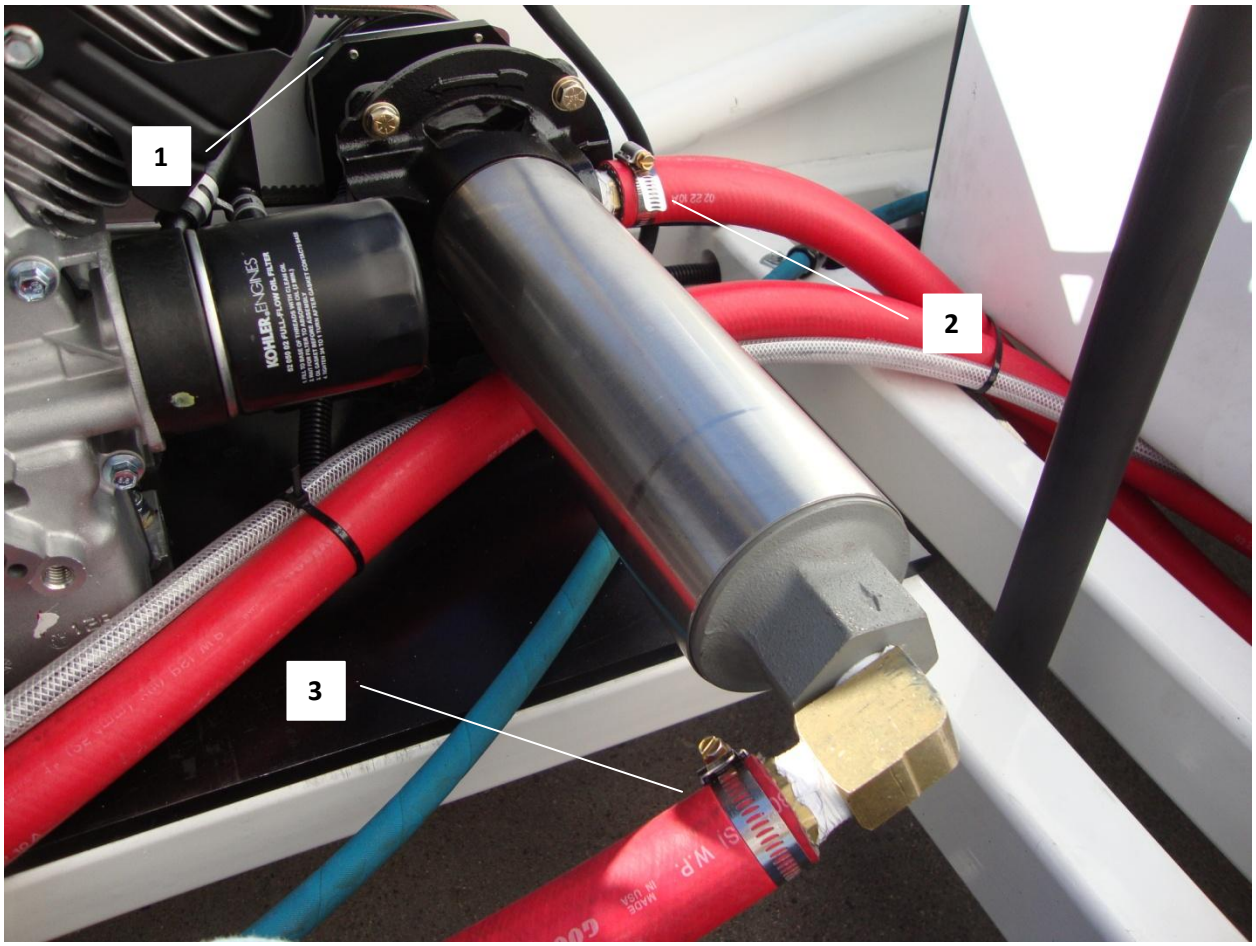
MAIN CONTROLL BOX

1. Two position heater switch (with heater option)
2. Heater indicator light (with heater option)
3. Two position pressure pump switch
4. Filter pump indicator light
5. High/Low water level indicator light
6. Push button winch controls
7. Hour meter



FILTER PUMP

1. Belt driven electromagnetic clutch
2. Water supply line from reclaim tank #3
3. Water output line to filtration system

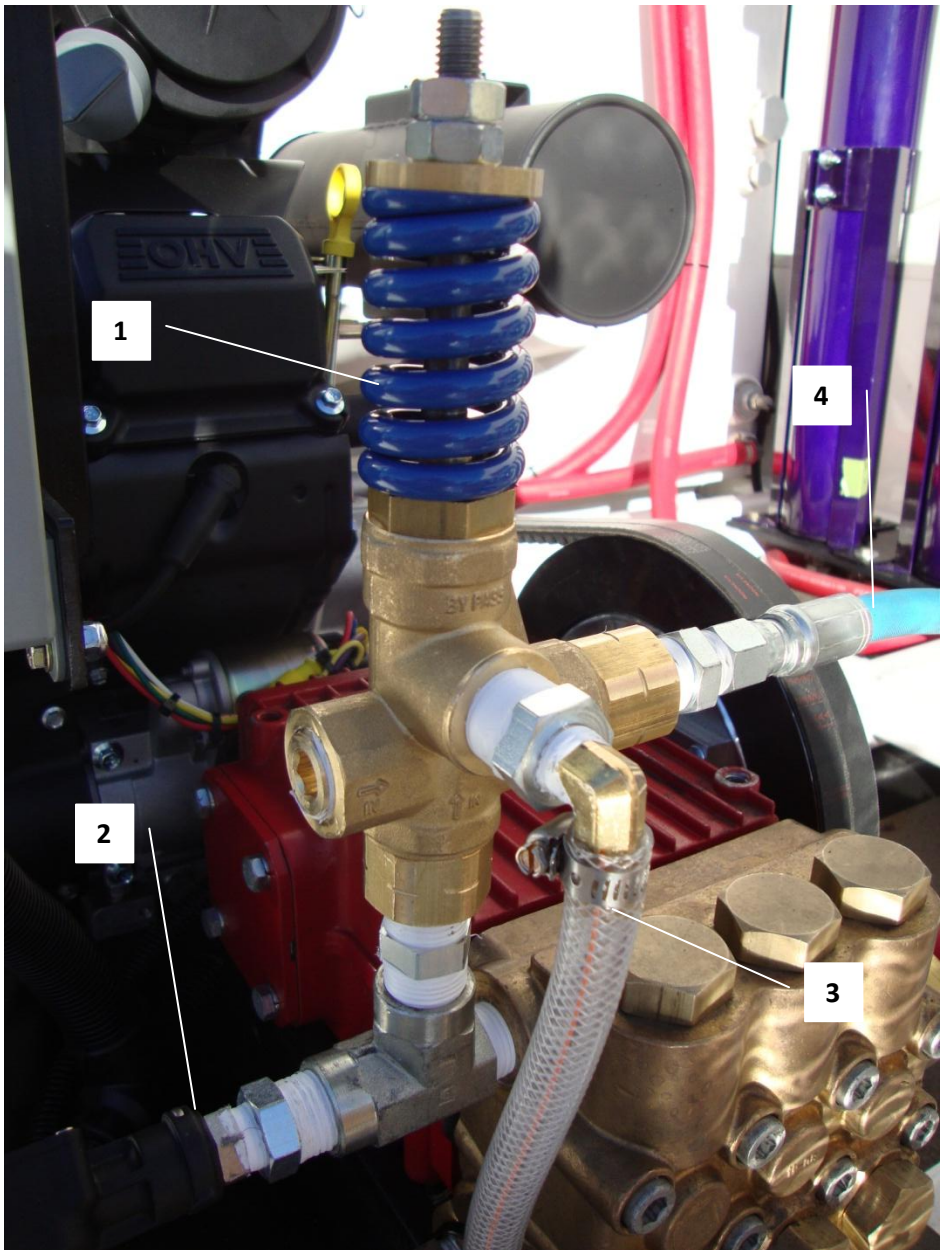


BECKETT CLEANCUT BURNER (optional)

1. Fuel pump
2. Blower
3. Supply line
4. Return line
5. Burner throat
6. Fuel control solenoid
7. Fuel filter
8. Heater coil housing

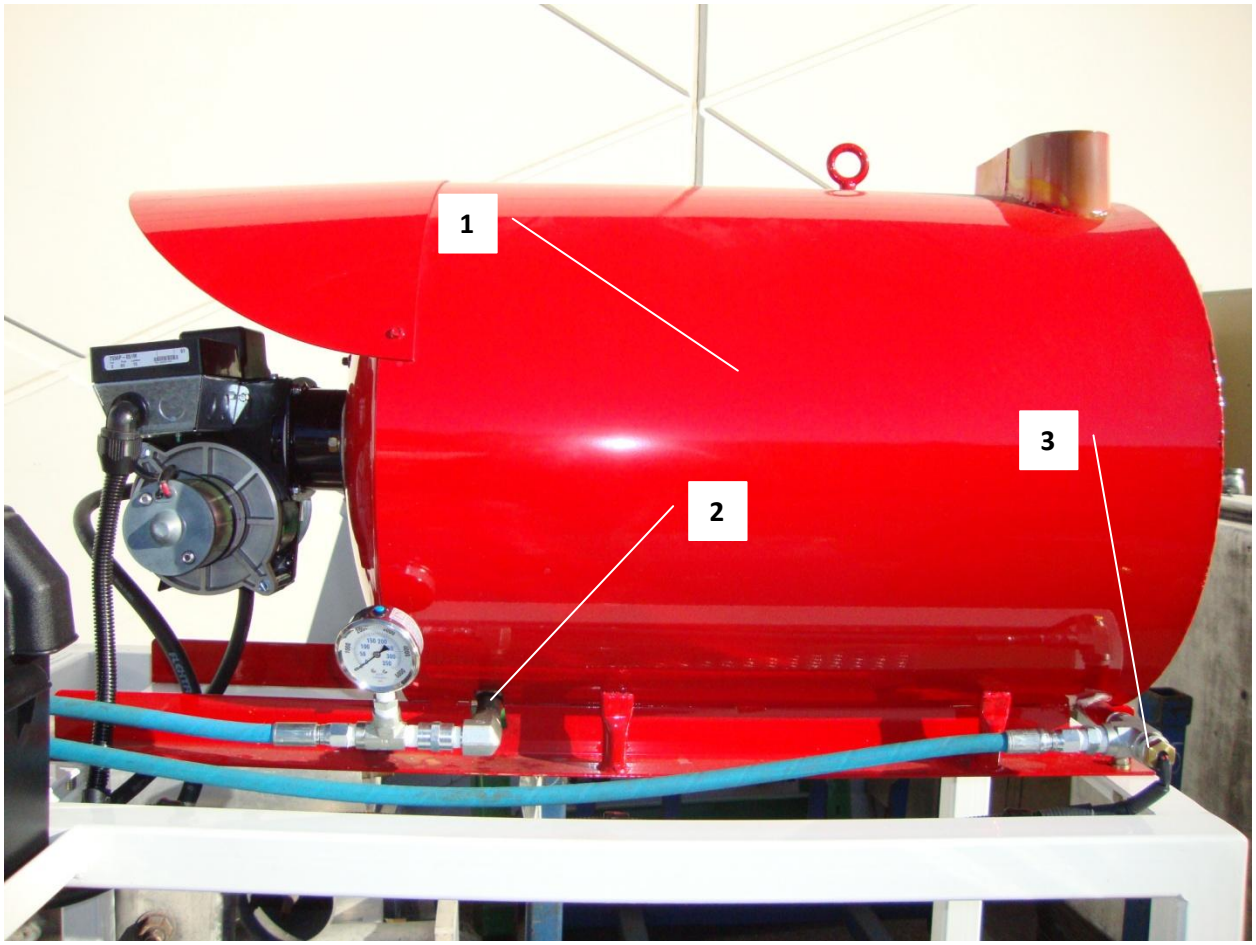
UNLOADER VALVE

1. Unloader valve
2. Pressure switch to activate heater control
3. Unloader valve return line
4. High pressure output line



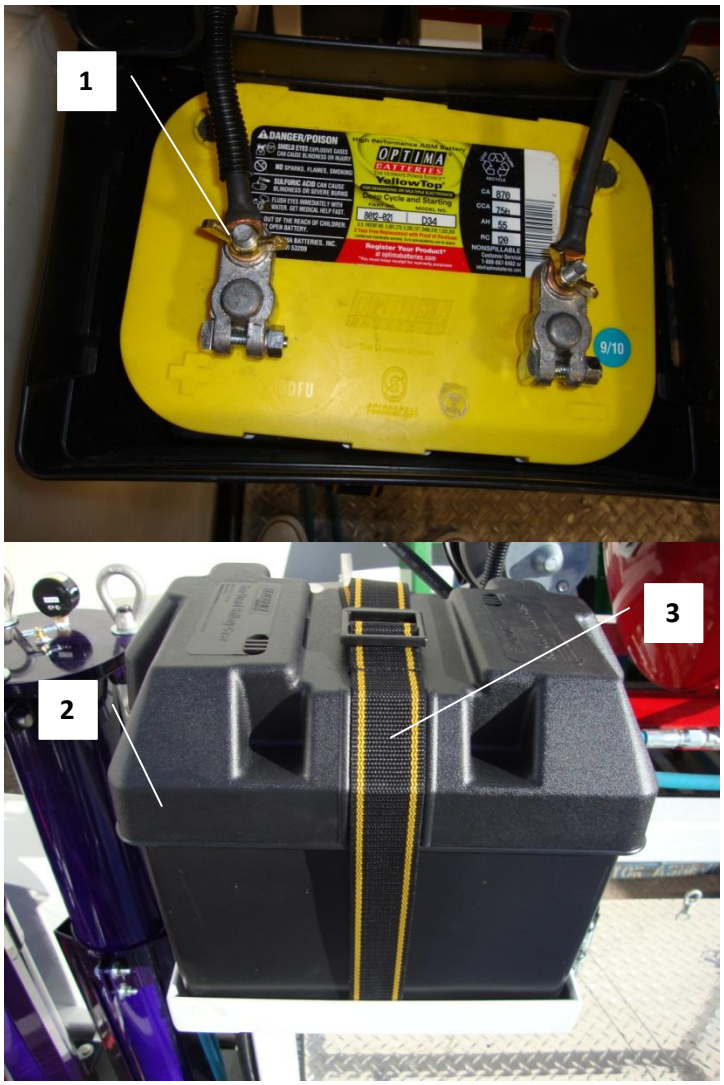
BURNER COIL (optional)

1. 20 inch diameter horizontal Coil housing
2. Internal scheduler 80 piping
3. Thermal switch regulating maximum temperature to 160˚F



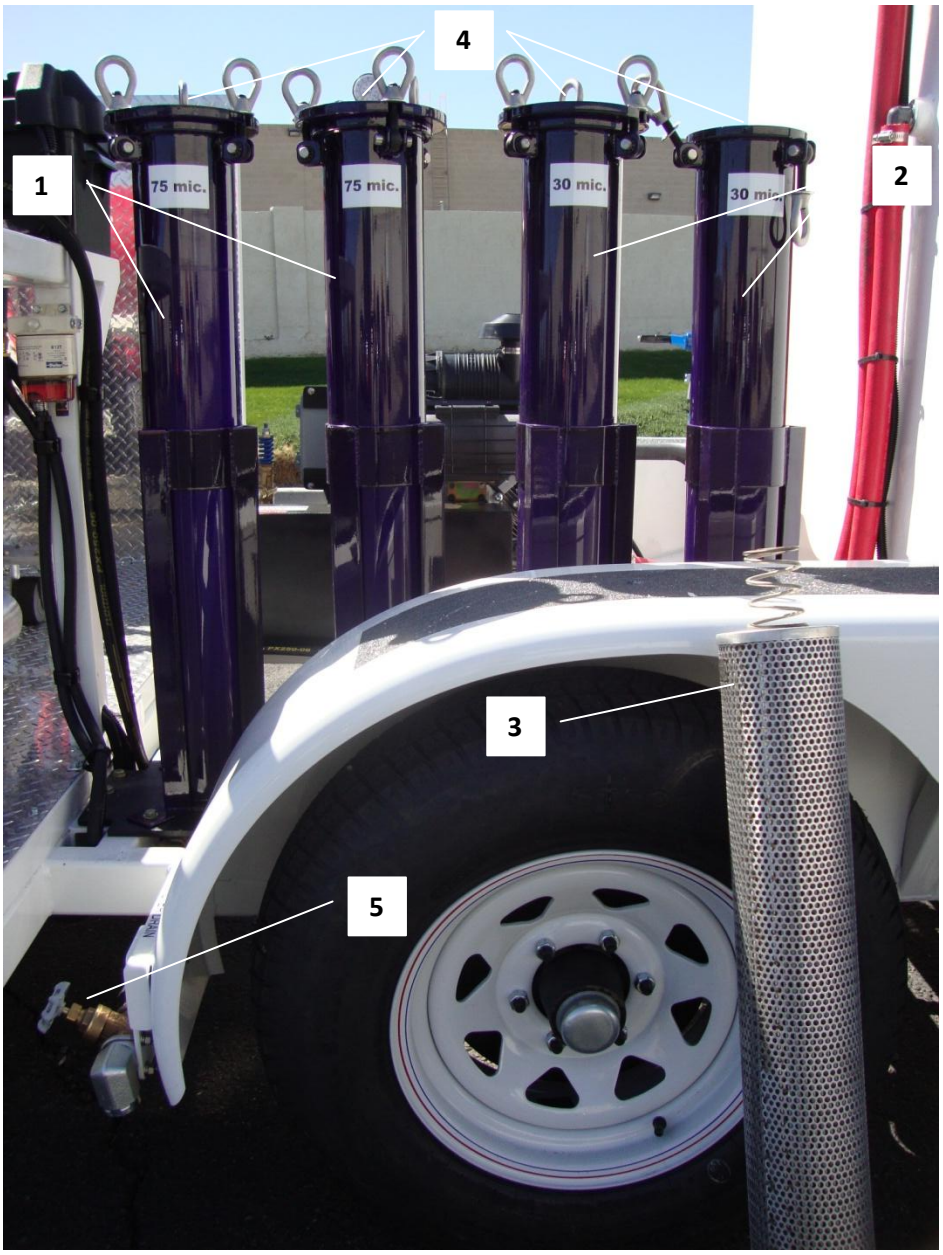
BATTERY

1. Yellow top Optima
2. Protective case
3. Tie down strap



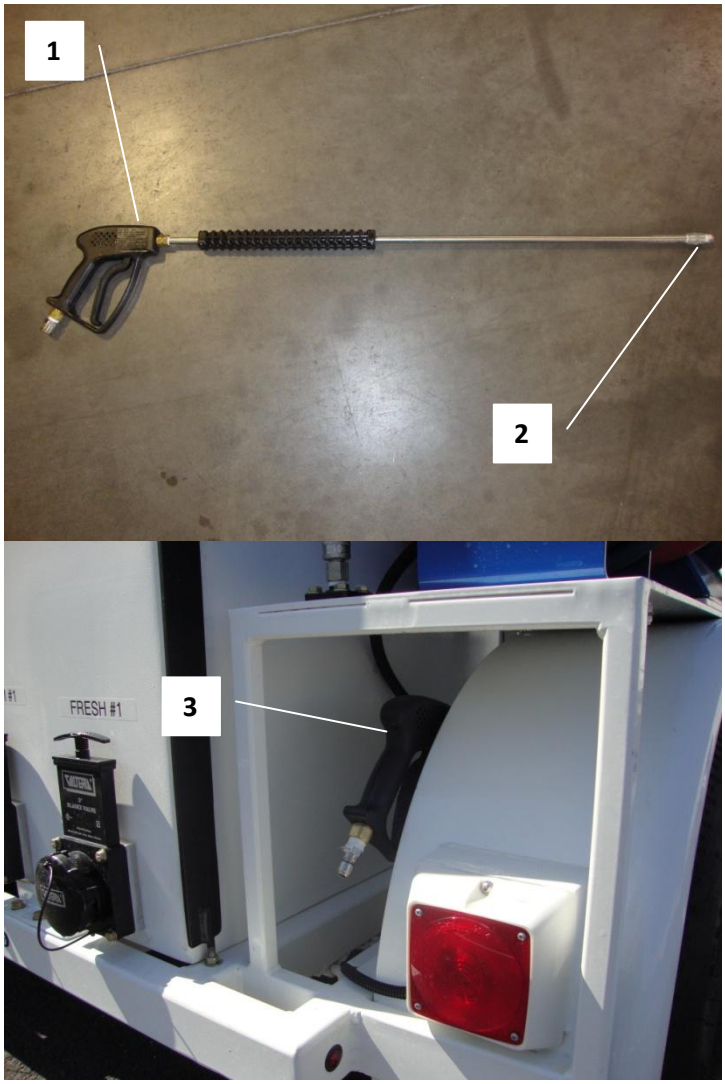
POWDER COATED FILTER HOUSINGS

1. 75 micron filter housings
2. 30 micron filter housings
3. Stainless steel reusable filter elements
4. Bleeder valves
5. Filter drain valve



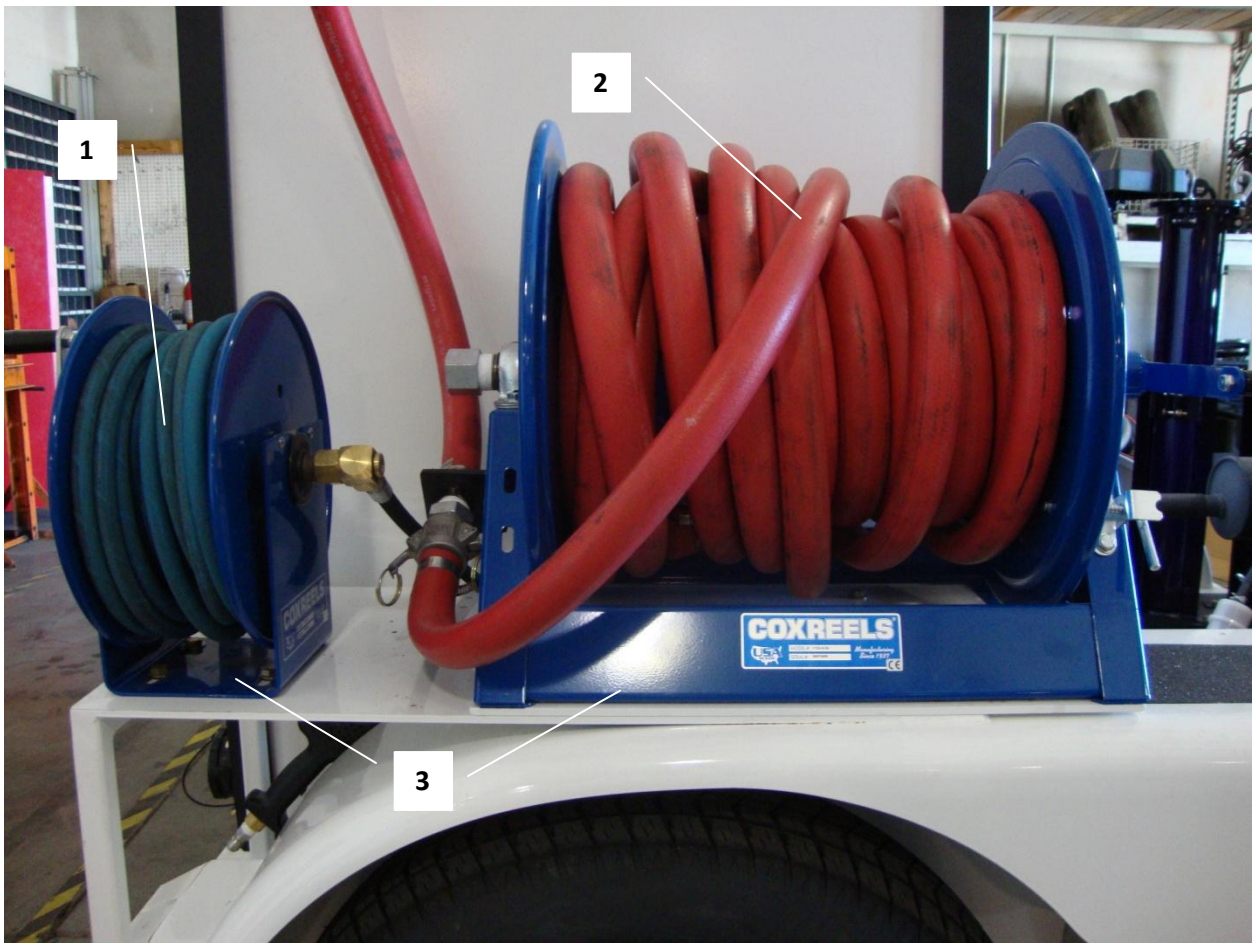
PRESSURE WAND

1. 5000 psi rated spray wand
2. 15070 stainless spray tip
3. Pressure wand storage holster



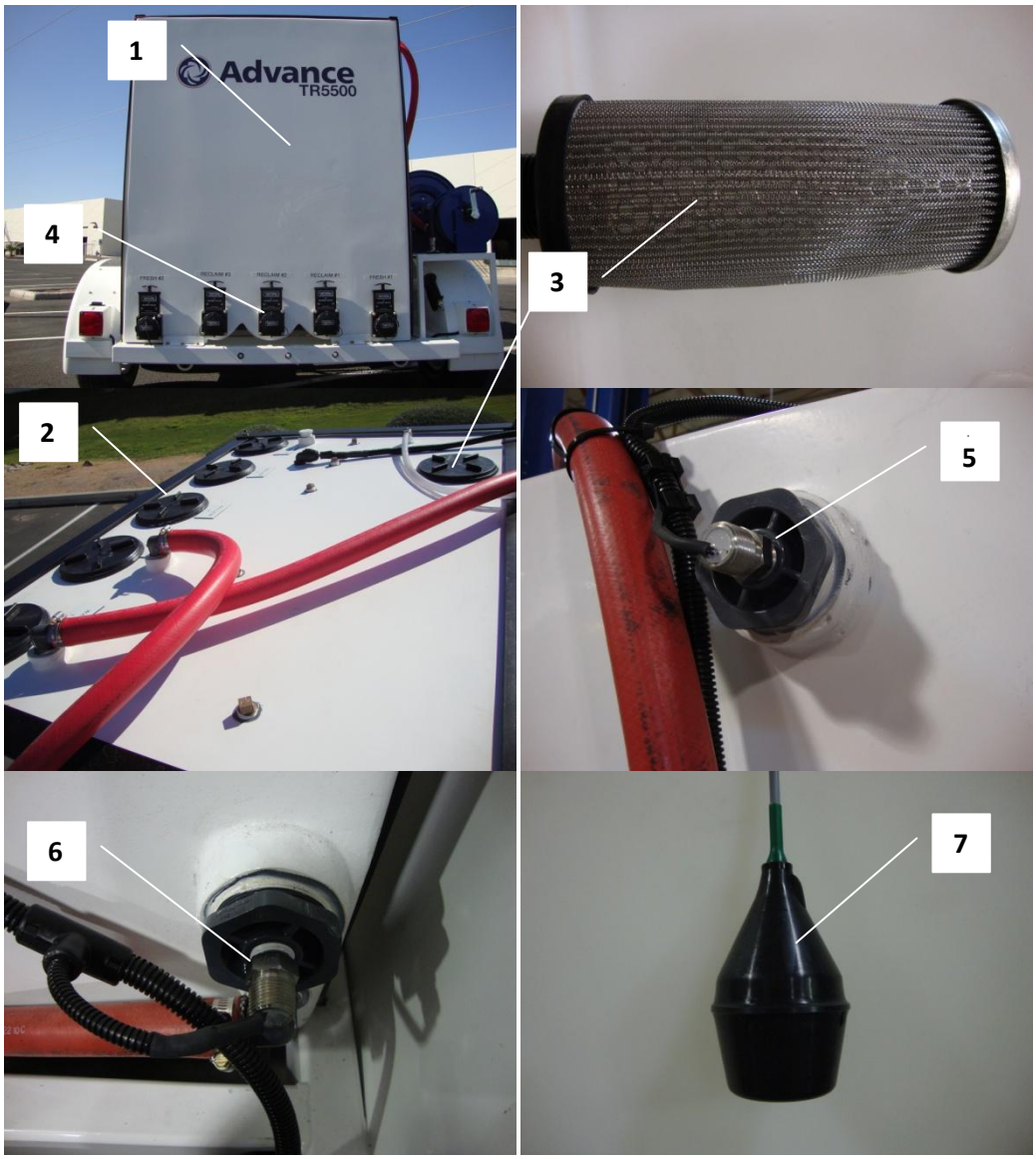
STANDARD HOSING

1. 3/8 inch 5000 psi rated hosing equipped with quick coupler connections
2. 1 inch 300 psi rated return line equipped with cam lock connections
3. Standard hose reel for convenient storage



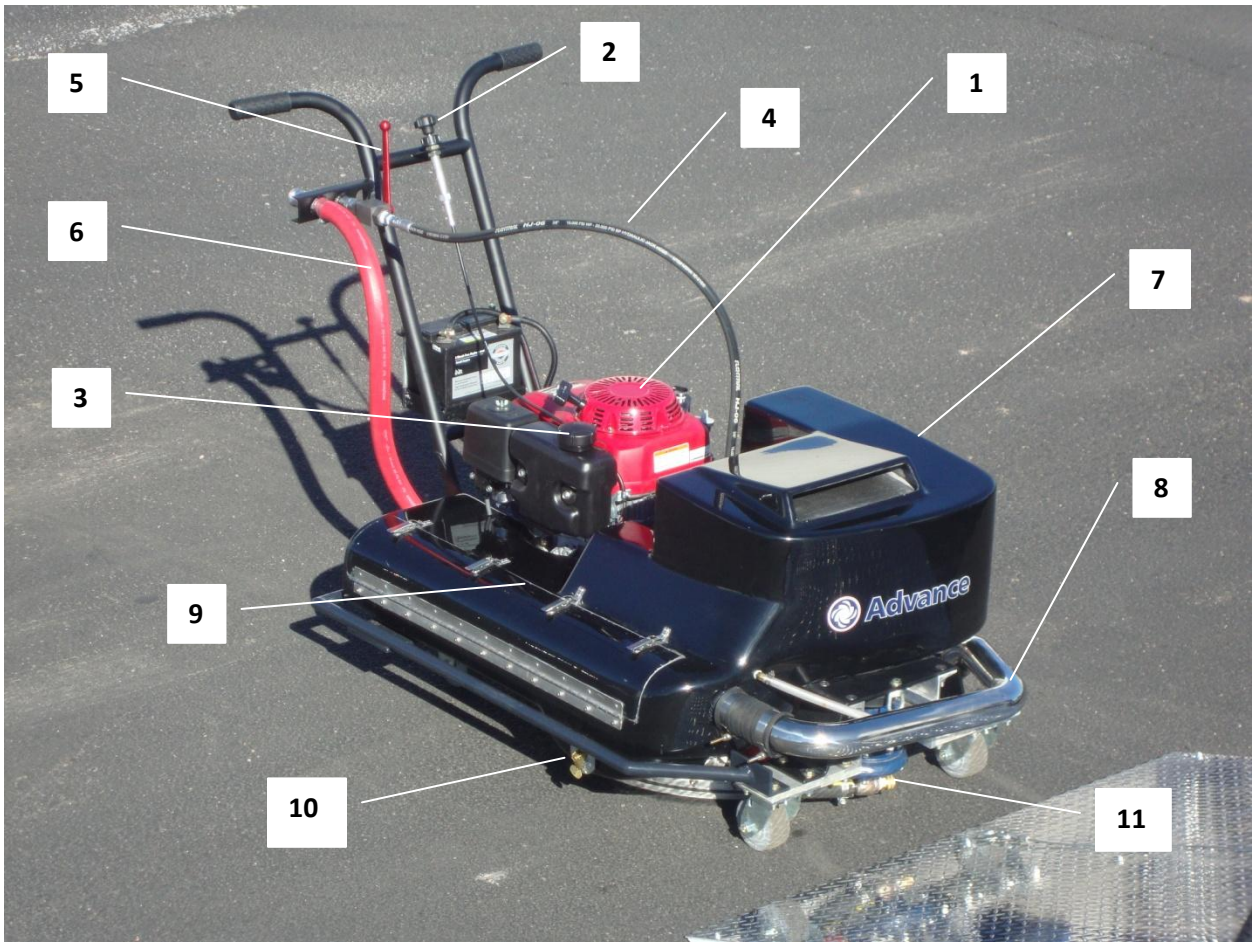
FIBERGLASS TANK

1. 395 gallon 5 chamber fiberglass water tank which includes a 220 gallon 3 chamber reclaim tank with patented internal baffle system, as well as two connected fresh water tanks with a 175 gallon capacity
2. Screw on access caps for easy filling and cleaning
3. Large debris filter screens with easy access cap located in reclaim tank #3
4. 3 inch Bladex valve drain system for quick and easy draining
5. High liquid level switch located in reclaim tank #3
6. Low liquid level switch located in fresh water tank #1
7. Water level float for automatic filtration located in reclaim tank #3



CY200 WALK BEHIND CLEANING UNIT

1. Honda GVX 390 engine
2. Throttle
3. Fuel tank
4. High pressure line
5. High pressure ball valve
6. Water recovery return line
7. Fiberglass recovery tank
8. Recovery port tube
9. Access panel for debris basket
10. Recovery tank drain plug
11. Recovery pump clean out cap



TR5500 OPERATION

FILLING WATER/RECLAIM TANKS

1. Place the water hose in Reclaim Tank #1 and begin to fill Reclaim Tanks #1, #2 and #3 until water level in 1 inch from the top. Note that once tank #1 fills, water will automatically flow into Reclaim Tank #2 and Reclaim Tank #3.
2. Once Reclaim Tanks are filled to the proper level, start the engine and set the throttle to high. To start the engine on the trailer slide the choke all the way to the left and slide the throttle to the half way position. Once started slide the choke all the way back to the right, you may now set the engine throttle to high by sliding the manual throttle lever all the way to the left.
3. Open the bleeder valves on top of the filter housing to allow the air to escape. Once water begins to flow from the bleeder valves, close the valves. Once water begins to flow from the bleeder valves the reclaim tank will automatically pump down to the appropriate level.
4. Keep the engine throttled to high, until water stops flowing into the clean water tanks or until the filter pump indicator light on the control panel turns off.
5. Once the filter pump stops flowing water into the clean water tanks you may begin filling the fresh water tanks until the water level is 2 inches from the top of the tank.

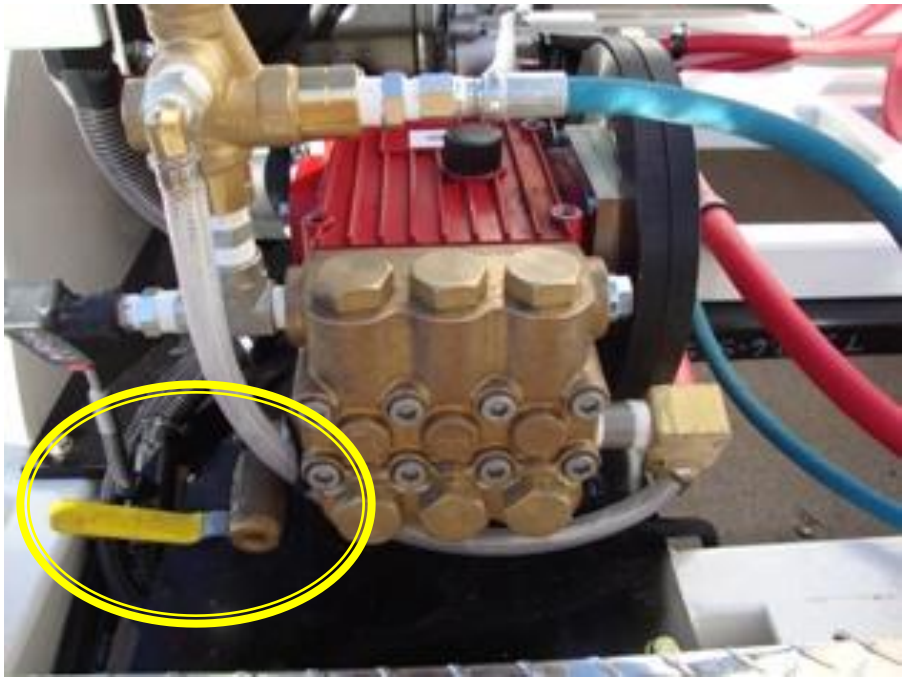
WARNING!

CAUTION: DO NOT OVERFILL RECLAIM TANKS; WATER CAN SPILL ONTO THE GROUND, WHICH DEFEATS THE PURPOSE OF THE TOTAL RECOVERY PRINCIPAL OF THIS MACHINE!

TR5500 OPERATION

PRIMING THE HIGH PRESSURE PUMP

1. Once you have filled the water tanks, bled the filters and filled the fresh water tanks, open the ball valve located on the high pressure pump.
2. When water flows freely through this valve with no air, the pump is primed and ready for operation. Always prime the pump before operation to make sure there is no air locks present inside the pump. This will both protect the high pressure pump from damage, as well as ensure you are getting maximum flow of water through the pump.
3. Close the ball valve before any further work is done.



WARNING!

CAUTION: ALWAYS OPEN THE BALL VALVE SHOWN ABOVE PRIOR TO OPPERATING THE TR5500 TO ENSURE THE HIGH PRESSURE PUMP IS PROPERLY CHARGED. LET WATER FLOW UNTILL ALL AIR BUBBLES ARE EXPELLED. NOTE: THIS SHOULD ONLY TAKE A FEW SECONDS OF FLOW!

TR5500 OPERATION

REMOVING THE CY200 CLEANING UNIT & SET UP

1. Remove the cotter pin from the safety latch holding the counterbalanced loading ramp in place and lower the ramp slowly **(Fig. 1)**.
2. To loosen the security chains, use the LT2000 Superwinch to guide the CY200 cleaning unit back a few inches. The winch controls are located on the control panel **(Fig. 2)**.
3. Remove the security chains holding the CY200 in place.
4. Using the LT2000 Superwinch controls slowly let out the winch cable allowing the CY200 to move down the counterbalanced ramp. Remember to pull back on the cleaning head while letting out the winch cable until the ramp begins to tilt and gravity can take over. Make sure to always help guide the CY200 cleaning unit down the ramp to ensure safety **(Fig. 3)**.

Figure 1

Figure 2

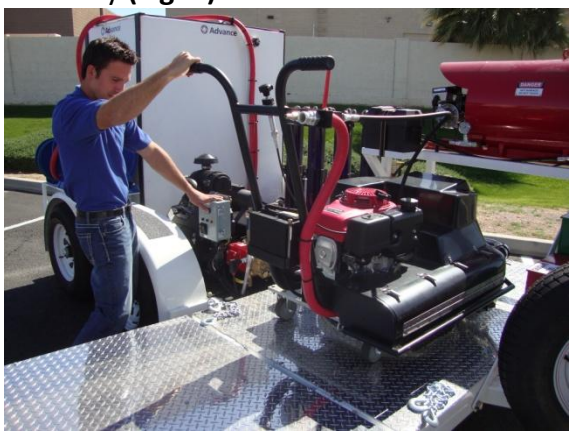


Figure 3

5. Once on the ground unhook the winch cable from the CY200 cleaning unit, hook the winch cable to one of the safety chains on the trailer and tension.
6. Fold the loading ramp up and latch it in place using the latch and cotter pin.
7. When positioned in your desired cleaning area, uncoil both the high pressure waterline as well as the return line from the hose reels. Before hooking the lines up take the time to fully extend both of your hoses in a straight line, doing so will both maximize your cleaning space and efficiency. Remember always work away from the hosing.
8. Hook up the high pressure line using the quick connect fitting to the CY200 cleaning unit **(Fig. 4a)**.

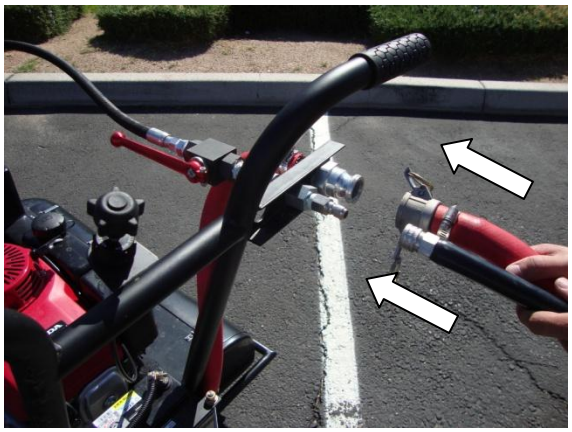


Figure 4a

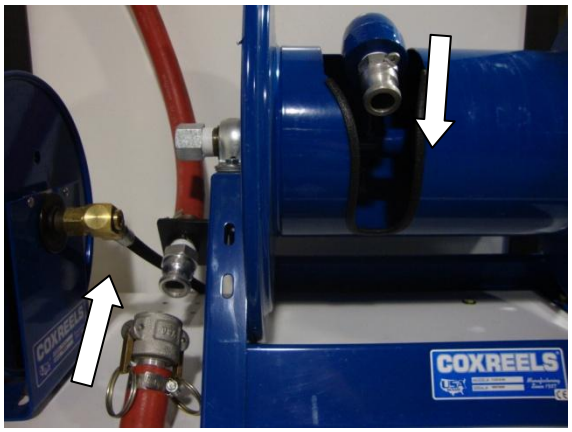


Figure 4b

9. Hook up the return line using the cam lock fitting to the CY200 cleaning unit and to the cam lock fitting located on the TR5500 next to the hose reel **(Fig. 4a/b)**.
   NOTE: To do so you must remove the cam lock fitting from the hose reel itself **(Fig. 4b)**.
10. Zip tie your hoses together every two feet for approximately ten feet from the cleaning head, zip-tying is optional but will help to control your hosing as you clean.
11. Start the CY200 cleaning unit by unscrewing the throttle, located at the center of the handle bars, until the choke is open **(Fig. 5a)**, then turn the key located on the Honda engine to start **(Fig. 5b)**.

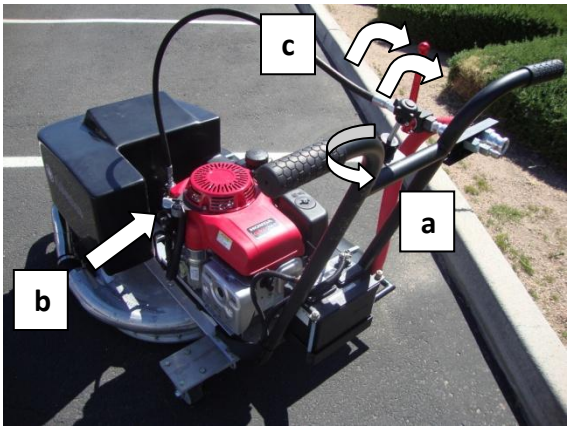


Figure 5

12. Once the engine is started screw the throttle back down a turn to close the choke, the throttle position should be wide open at this time.
13. Before continuing, make sure the ball valve controlling the flow of high pressurized water to the cleaning unit is in the closed, or up position **(Fig 5c)**. **Do not** start the trailer engine with the valve open.
14. Once you have properly adjusted the throttle on the CY200, primed the pump, bled the filters and filled the fresh water tanks you are ready to start the TR5500 trailer engine.
15. With the valve handle in the up position on the cleaning head start the engine on the trailer.
16. With the trailer engine throttled to high, press the switch labeled pump **(Fig. 6a)** to begin the flow of high pressurized water. If heated water is desired, also press the switch labeled heater **(Fig. 6b)**.

17. Begin moving the cleaning unit, push the ball valve controlling the flow of the pressurized water to the walk behind cleaning unit all the way forward, making sure to open it completely. You are now ready to clean.
18. When you are almost finished cleaning turn off the heater switch **(Fig 6b)** and finish cleaning for two to three minutes to allow all of your hoses time to cool down.
19. REMEMBER, when finished cleaning always clear the pressure line of any pressurized water before unhooking the line. Do this by opening the ball valve (Forward) located on the CY200 cleaning unit once you have **shut off** the TR5500 pump **(Fig. 7)**.

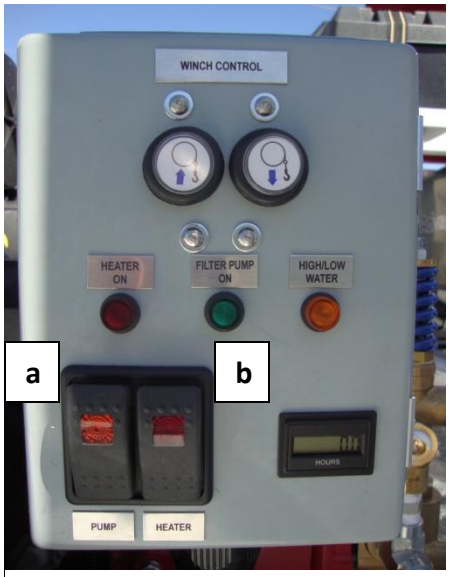


Figure 6

Figure 7

WARNING!

WHEN OPERATING THE CY200 CLEANING UNIT CONTINUOUSLY MOVE THE CLEANING HEAD WHILE PUTTING HIGH PRESSURE WATER DOWN. IF YOU STOP MOVING THE MACHINE IMMEDIATELY CLOSE THE BALL VALVE CONTROLLING THE FLOW OF HIGH PRESSURE WATER!

END OF SHIFT CLEANING PROCEDURE

NOTE: IT IS EXTREEMELY IMPORTANT TO THOROUGHLY CLEAN THE CY200 CLEANING UNIT AS WELL AS THE TR5500 AFTER EVERY USE! FAILURE TO PROPERLY CLEAN THE MACHINE, PER THE FOLLOWING PROCEDURE, CAN LEAD TO POOR OPERATION PERFORMANCE, AND/OR A FAILURE OF CRITICAL COMPONENTS AS WELL AS VOIDING THE MANUFACTURERS WARRANTY!

CY200 WALK BEHIND CLEANING HEAD

1. Once done cleaning always remember to remove the large debris basket from the CY200 recovery tank and thoroughly clean it out using a standard garden hose **(Fig. 7a)**.
2. Remove the tank plug **(Fig. 7b)**, as well as recovery pump cap **(Fig. 7bc)**, to allow water and trapped sediment to drain out of the CY200 walk behind unit.

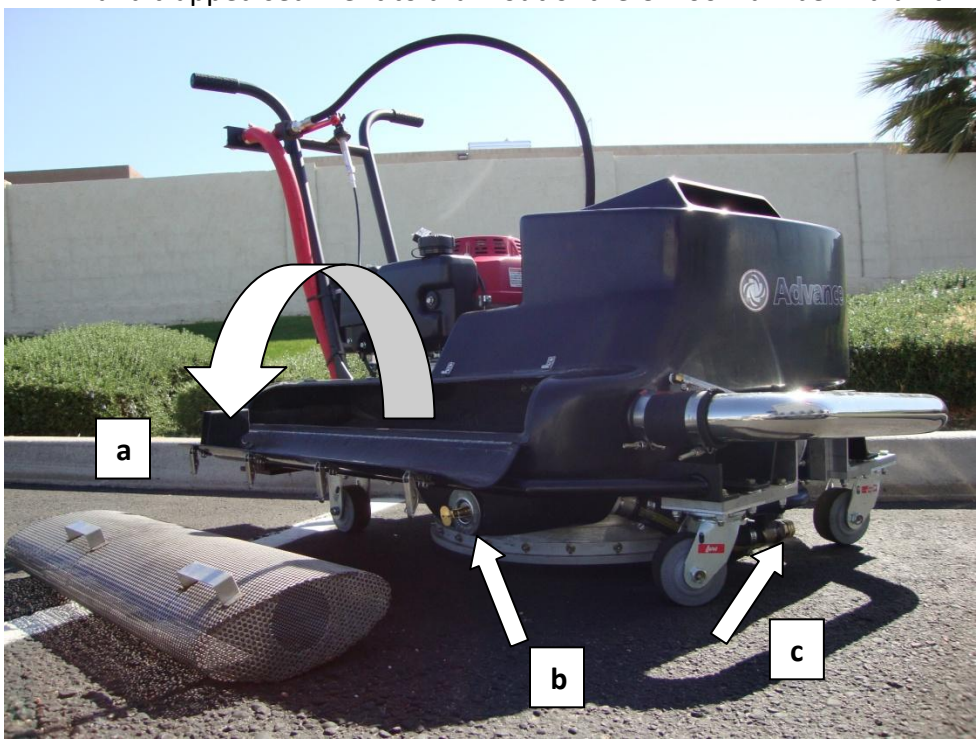


Figure 7

3. In addition, it is always recommended to flush out the CY200 recovery tubes, recovery pump as well as the recovery tank with a standard garden hose. If needed scoop out any sediment which may be left in the CY200 recovery tank.
4. When the recovery tank is thoroughly cleaned out, place the large debris basket back into the recovery tank, replace tank plug, and recovery pump cap. When replacing the recovery tank basket make sure to line up the screen hole with the port tube and push the debris basket all the way forward in the recovery tank.
5. Do not allow sediment to sit in your return line, when finished cleaning flush out the return line with a garden hose until the water runs clear.

6. Return both the high pressure line, as well as the water return line to their designated hose reels and secure using the quick connect fitting for the pressure line, and the cam lock fitting, located inside the hose reel, for the return line.
7. Once the CY200 cleaning unit has been serviced properly and reassembled, return the unit to the storage deck on the TR5500, using the electric winch. Secure the unit with the security chains, and take any slack out of the chains using the winch controls **(Fig 8)**. There should be ample tension on the chains as well as the winch cable to ensure the CY200 cleaning unit does not move or slide on the storage deck during travel.
8. Once secured, lift the loading ramp and return the latch and cotter pin to the locking pin **(Fig. 9)**.

Figure 8

Figure 9

END OF SHIFT CLEANING PROCEDURE

TR5500 TRAILER

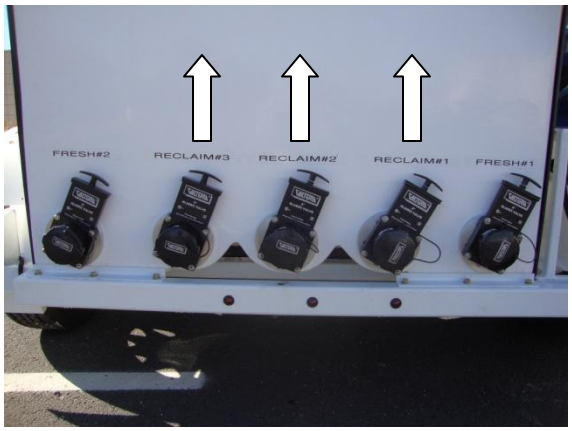


Figure 8

1. Pull the T-handles on the Bladex drain valves to drain the **reclaim tanks <u>only</u> (Fig. 8)**.
2. Remove the hand held cleaning wand from its storage holster located in the rear of the trailer and hook up the high pressure water line.
3. Start the 27hp Kohler engine, and turn on both the pump and burner switch.
4. Before removing the stainless steel filter elements make sure to drain the water from the filter housings using the gate valve located in front of the left fender next to the filter assembly. This valve will drain both the 75 as well as the 30 micron filter housings of all existing water **(Fig. 9)**.
5. Loosen the eye nuts securing the filter housing lids. Remove the lids and set aside. Remove the stainless steel filter elements from the filter housings and set aside **(Fig. 10).**
6. Using the cleaning wand, thoroughly clean the stainless steel filter elements.

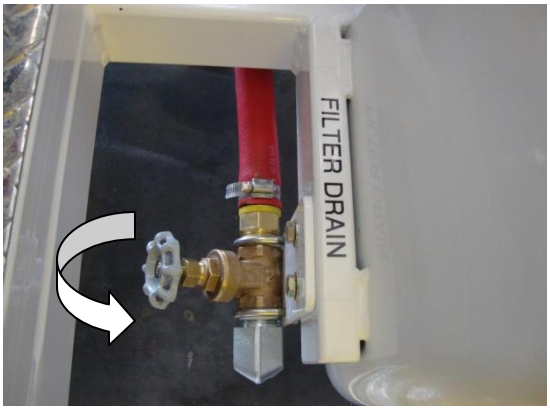


Figure 9

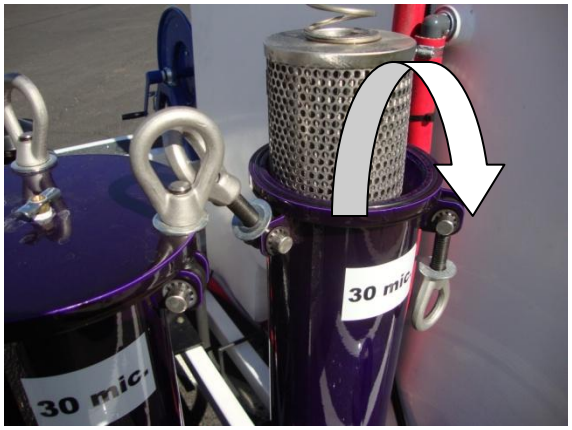


Figure 10

WARNING!

MAKE SURE TO TOP OFF YOUR FRESH WATER TANKS TO ENSURE THERE IS AN AMPLE AMOUNT OF CLEAN WATER TO PROPERLY CLEAN YOUR FILTER ELEMENTS!

7. Once you have cleaned the filter elements, return them to their proper filter housing making sure to replace the 30 micron and 75 micron filters in the correct filter housings, secure the lids and tightening the eye nuts.

8. Turn off the pump and burner switch and clear the cleaning wand of any pressurized water before unhooking the high pressure water line. Return the cleaning wand and re-wrap the high pressure line on the hose reel.
9. You may now drain off all remaining water in the fresh water tanks using the 3 inch Bladex drain valves.

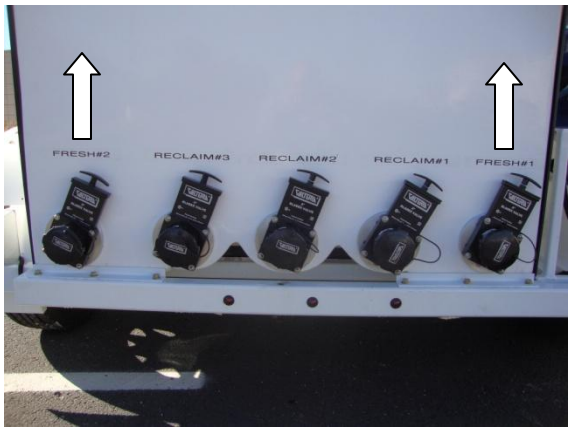


Figure 11

10. Using a standard garden hose rinse all reclaim as well as fresh water tanks of any residual debris that may be left in the tanks.
11. When cleaning out water the tanks make sure to remove the large debris mesh filter access lid on reclaim tank #3 and gently rinse this filter as well.

Figure 12

12. Once the TR5500 has been properly serviced you may replace all caps and close all valves for storage **(Fig. 13)**.

Figure 13

MAINTENANCE

Keep the machine in top condition by following the maintenance schedule closely. Maintenance intervals given are for average operating conditions. Machines used in severe environments may require service more often. In general:

1. Keep the fuel tank filled (gasoline or diesel). This helps to reduce condensation and moisture entering the fuel system.
2. Be aware of the high/low water level amber service indicator light.
3. Clean your filtration system as well as your CY200 cleaning unit after every use to maximize your cleaning ability.
4. Reference the Beckett burner, Giant pump, Kohler engine and Honda engine service manuals for recommended engine service intervals and procedures.

RECOMMENDED SERVICE MATERIALS

1. Engine Oil (10 W 30) reference engine manual for extreme weather applications
2. Full synthetic Oil for pressure pump (20 W 50)
3. Multipurpose bearing Grease
4. Teflon tape type thread sealant in the appropriate grades
5. Never-Seez® (or equivalent) anti-seize compound

JACKING POINTS ON TR5500

When jacking the TR5500 always do so at the designated locations on either axle only.

WARNING!

NEVER WORK UNDER A MACHINE WITHOUT SAFETY STANDS OR BLOCKS TO SUPPORT THE MACHINE!

CY200 CLEANING UNIT MAINTENCE CHART

CY200 CLEANING UNIT	8 HOURS	16 HOURS	40 HOURS	200 HOURS
CYCLONE BELT TENSION AND CONDITION			X	
GREASE LUBRICATION POINTS			X	
CYCLONE BRUSH CONDITION			X	
CYCLONE PRESSURE TIPS		X		
CYCLONE HARDWARE			X	
CYCLONE DECK CASTERS				X
CYCLONE BLADES AND BARS				X
ENGINE MOUNT BOLTS			X	
SERVICE BATTERY CONNCETION			X	

CY200 CLEANING UNIT MAINTENANCE

CHANGING SPRAY TIPS

1. Nilfisk Advance recommends a 40-025 size spray tips for use in the CY200 walk behind
2. Spray tips **(1)** should be changes every 8-16 hours depending on the severity of the cleaning being done. This can be determined if the machine is losing pressure due to the tips opening up from excessive wear.
3. Use a 9/16 inch shallow well socket to remove the spray tips from the spray bars **(2)**. This can be done without removing the protective disc **(3)**.
4. Wrap the threads of the new pressure tips with a minimum of 5 wraps of Teflon tape and replace into the spray bar. Be sure to line up the slot in the pressure tip parallel with the spar bar, this is essential to the system operating properly.
5. When changing tips be sure to inspect the CY200 hardware and turbine blades **(4)** for damage and needed maintenance.

WARNING!

ALWAYS SUPORT THE CYCLONE HEAD PRIOR TO WORKING BENEATH THE DECK. WHEN INSTALLING NEW SPRAY TIPS, THEY MUST HAVE A MINIMUM OF 5 WRAPS OF TEFLON TAPE TO MAKE SURE THE STAINLESS STEEL THREADS ON THE TIP DO NOT CONTACT THE THREADS OF THE STAINLESS STEEL SPRAY BAR. CONTACT BETWEEN THE TWO CAN CAUSE THE TIP TO SEIZE INSIDE THE SPRAY BAR, RESULTING IN THE SPRAY BAR HAVING TO BE REPLACED.

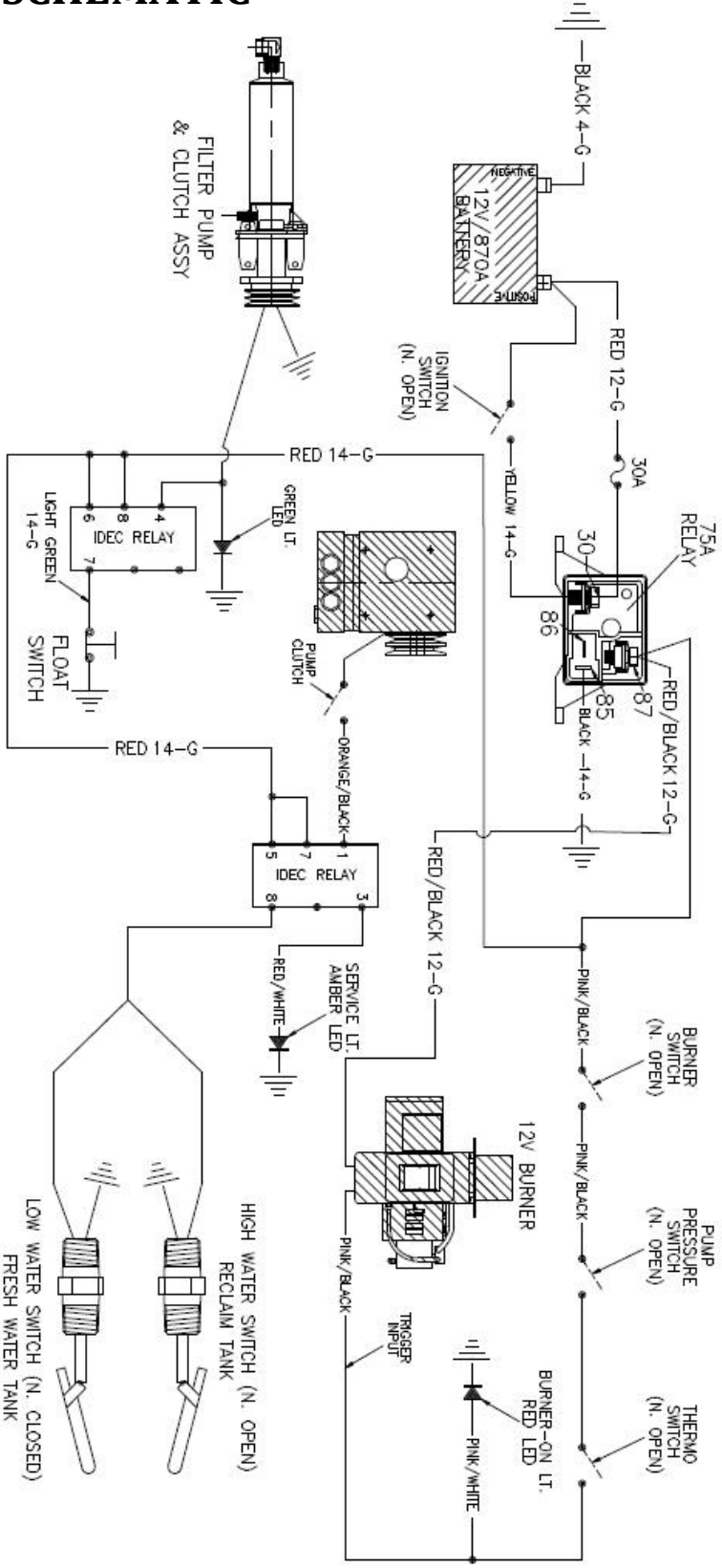
CY200 CLEANING UNIT MAINTENANCE

GREASING LUBRICATION POINTS

It is recommended that you are diligent in checking the grease points on the CY200 regularly. There are three grease points located on the CY200, they are located on the left support rail **(1)**, at the front of the cleaning head on the recovery pump **(2)**, and in the center of the CY200 unit at the rotating assembly **(3),** which supplies pressurized water to the cleaning head.

When greasing these points always use multipurpose bearing grease, and it is recommended that you grease these points after every 40 hours of operation.

ELECTRICAL SCHEMATIC



WATER FLOW CHART